

Multiple Sclerosis

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Multiple Sclerosis (MS) is a chronic disorder that attacks the central nervous system (CNS) which consists of the brain, spinal cord and optic nerves. Nerve fibers have a fatty tissue called myelin surrounding them which provides protection and enables nerves to perform properly. In MS, the myelin coating is lost or damaged, exposing the nerve and sometimes damaging them. Scar tissue, called sclerosis, plaques or lesions, forms wherever the myelin is lost throughout the CNS. These lesions interfere with the normal transmission of electrical impulses along the nerves. Lost or disrupted nerve signals result in the wide variety of symptoms that individuals with MS experience.

Causes, Prevalence and Risk Factors

The exact cause of MS is not known. Most researchers believe that MS is an autoimmune disease. Normally the immune system defends the body by attacking foreign invaders such as viruses and bacteria. In MS, the body's immune system attacks itself, in this case, the myelin sheath. Why the immune system behaves abnormally is unknown.

There are an estimated 350,000 to 500,000 persons in the United States who have MS. The overall risk of developing MS to the general population in the United States is about 1 in 750. However, certain population groups within the general population are at higher risk. For example, two or three times more women than men, have MS. Although people of all ethnic groups may develop

MS, it is more prevalent in caucasians, particularly those of northern European background. Also if you have a parent or sibling with MS, you are much more likely to develop it than the general population. Although MS is not inherited, it is believed that some individuals may inherit a susceptibility to autoimmune disease which places them at greater risk of developing it.

There are a number of myths about MS that are not based in research. First, MS is not contagious. Second, contact with heavy metals can cause damage to the nerves but there is no evidence of heavy metals or mercury from amalgam in dental fillings being linked with MS. Third, a number of viruses have been and are under study in relationship with MS. However, no virus has been found to cause MS.

Symptoms

The symptoms of multiple sclerosis vary greatly from one person to another and within one person over time. Symptoms may include bowel and/or bladder disfunction, changes in cognitive abilities, dizziness and vertigo, emotional problems, fatigue, difficulty in walking, numbness or "pins and needles," pain, vision problems, headaches, hearing loss, itching, seizures, spasticity, slurred speech, swallowing problems, and tremors. Most individuals will experience only some of these symptoms and perhaps not at the same time.



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Diagnosis

Since there is no single test to identify or rule out MS, diagnosis of the condition can be difficult and take awhile. Physicians rely on medical history and a variety of tests and procedures to arrive at a diagnosis. Abnormal functioning of the nervous system, such as, loss of coordination and balance, delayed reflexes, blurred vision and numbness may suggest MS. Magnetic Resonance Imaging (MRI) may be used to look for scars on the nervous tissue in the brain or fluid may be drawn from the spinal cord to look for antibodies associated with the disease. Definitive diagnosis is usually based on evidence of nerve damage in two different parts of the CNS and two separate flare-ups of MS symptoms over time.

Types of MS

MS has been categorized into several types based on the progression of symptoms. They are:

Relapsing-remitting (RRMS, 80%). Most persons diagnosed with MS have the relapsing-remitting type. With this form, individuals experience a series of periodic flare-ups followed by a time of partial or complete recovery.

Within 25 years, most persons with RRMS will enter a second phase termed secondary-progressive MS (SPMS). This phase is characterized by a progressive worsening of symptoms.

A smaller group of persons with RRMS will not get worse but continue the periodic relapses with little or no ongoing disability.

Primary-progressive (PPMS, 15%). Persons with this type of MS experience a gradual worsening of symptoms from the onset.

Progressive-relapsing (PRMS) and malignant (5%). Persons with progressive-relapsing MS experience a gradual worsening of symptoms and acute relapses. The malignant form of MS follows a course of rapid progression of worsening symptoms.

Treatment

At the present there is no treatment to prevent or cure MS. There are, however, a number of treatments for MS and its symptoms that have proven effective in clinical trials. Disease modifying drugs (beta interferons) work to modulate or suppress the immune system thereby reducing the severity or delaying the onset of symptoms. These drugs have been shown to be more effective if started immediately after diagnosis rather than later. A physician prescription and consultation is required to match the appropriate medication to the disease course of MS experienced by the individual. Each drug affects the body differently, has different side effects and is administered in a different manner. Generally speaking these disease modifying drugs are expensive and one should weigh the costs against expected benefits.

A flare-up or an attack of MS symptoms is caused by an area of inflammation in the CNS. These flare-ups, or exacerbations as physicians call them, are usually treated with corticosteroids. Steroids are hormones produced by the adrenal gland in the body and are used to reduce the inflammation. Blood plasma exchange (plasmapheresis) may be considered for some individuals who do not respond well to steroid treatment.

Treatment of other MS symptoms are as varied as the symptoms and may be addressed the same as for non-MS individuals. In addition, rehabilitation may be prescribed to restore or maintain function in persons with MS who have lost these capabilities through the disease process.

Persons with MS often seek out clinically unproven treatments for the wide range of symptoms they experience - especially if the prescribed treatment has been ineffective. These complementary and alternative medicines come from many disciplines and traditions. They can include special diets, vitamin supplements, life-style changes and mental exercises. Before beginning such a program, discuss it with your physician. He/she can tell you if your proposed self-administered program will interfere with your currently prescribed treatment.

Prognosis - Living with Multiple Sclerosis

Everyone is different and the progression of symptoms over the course of the disease is highly variable. Some persons with MS are severely affected; they need a wheelchair for mobility and have trouble speaking and writing. However, most people with MS have mild symptoms and a normal life expectancy.

More Information

More information regarding multiple sclerosis may be obtained from the:

National Multiple Sclerosis Society
www.nationalmssociety.org

Multiple Sclerosis Foundation
www.msfocus.org

Multiple Sclerosis Association of America
www.msaa.com

Arkansas Division of National Multiple Sclerosis Society:

Evergreen Place
1100 N. University, Suite 255
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<http://www.nationalmssociety.org/arr/home>

Multiple Sclerosis Association of America,
MidSouth Chapter:

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References

National Multiple Sclerosis Society [Electronic file]. (2004). Denver, CO: National Multiple Sclerosis Society [Producer and Distributor]. Available: <http://www.nationalmssociety.org>

NINDS Multiple Sclerosis Information Page [Electronic file]. (2001). Bethesda, MD: National Institute of Neurological Disorders and Stroke [Producer and Distributor]. Available: http://www.ninds.nih.gov/health_and_medical/disorders/multiple_sclerosis.htm

Multiple Sclerosis Association of America. (2002). Multiple Sclerosis: The Process and Medical Treatments. Cherry Hill, NJ.

Multiple Sclerosis Association of America. (2002). Multiple Sclerosis: Managing Symptoms. Cherry Hill, NJ.

Multiple Sclerosis Foundation [Electronic file]. (2004). Fort Lauderdale, FL: Multiple Sclerosis Foundation [Producer and Distributor]. Available: <http://www.msfacts.org>